E. F. HODGKINS.

DEVICE FOR SEPARATING FRICTIONALLY ENGAGED MEMBERS.

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1,434,437. Patented Nov. 7, 1922.

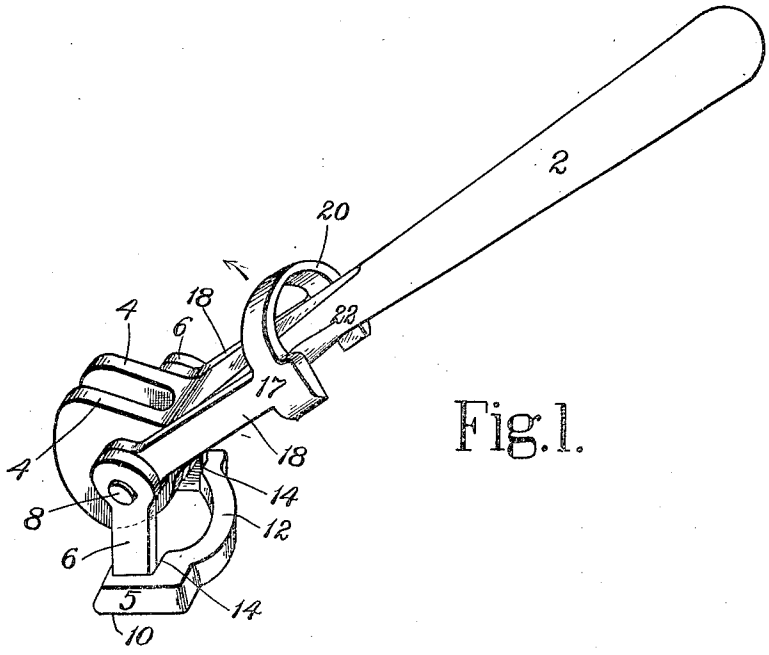


Fig. 1.

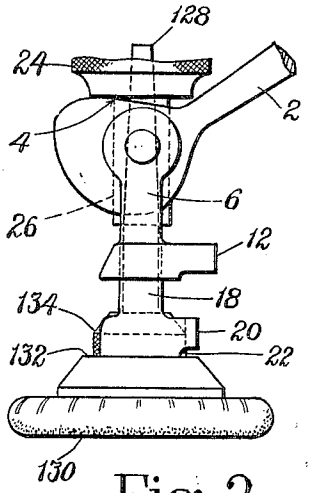


Fig. 3.

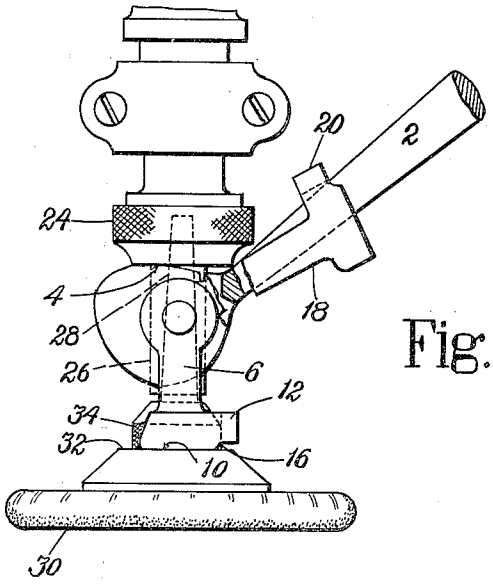


Fig. 2.

INVENTOR.

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UNITED STATES PATENT OFFICE.

EDWARD F. HODGKINS, OF BEVERLY, MASSACHUSETTS, ASSIGNOR TO NAUMKEAG BUFFING MACHINE COMPANY, OF BEVERLY, MASSACHUSETTS, A CORPORATION OF MAINE.

DEVICE FOR SEPARATING FRICTIONALLY-ENGAGED MEMBERS.

Application filed June 7, 1920. Serial No. 387,253.

To all whom it may concern:

Be it known that I, EDWARD F. HODGKINS, a citizen of the United States, residing at Beverly, in the county of Essex and State of Massachusetts, have invented certain Improvements in Devices for Separating Frictionally-Engaged Members, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to devices for separating frictionally engaged members and is designed, in the embodiment herein disclosed, with special reference to its use in removing the pad shafts from the heads of buffing machines.

In buffing machines of the Naumkeag type, it is common practice to form the pad shaft as a tapered spindle which fits within an interiorly tapered spindle or sleeve that rotates the pad on the head of the machine. These spindles stick so tightly in the tapered sleeves that it has been a matter of considerable difficulty to loosen them and it has often occurred that in the removal they become injured, as when the operator hammers them loose. The blows are necessarily applied at a considerable distance from the longitudinal axis of the spindles and result in bending of the shaft and perhaps injury to the pad. In these machines there is usually employed an abrasive cloth fitted over inflated rubber pads and used for buffing and the tapered shafts which carry the pads vary as to length. It is accordingly necessary to provide for removal of either the longer or the shorter shafts.

An object of the invention, therefore, is to provide an improved device which will enable an operator to separate spaced members quickly, easily and without injury.

In the illustrated embodiment, the device comprises a handle having a cam portion, an arm pivoted to the cam portion for co-operation therewith in separating more widely spaced members and a shorter arm pivoted to the cam portion to co-operate therewith in separating less widely spaced members. Preferably the arms are arranged in pairs so that, where axially alined members are to be separated, the arms can straddle the alined members and apply a force near the longitudinal axis of the members to avoid bending them.

Referring to the drawings,

Fig. 1 is a perspective view of my device showing one of the arms thrown to an inoperative position;

Fig. 2 is a partial front elevation of the head of a machine indicating the application of the device thereto for the purpose of removing a comparatively short, tapered pad shaft; and

Fig. 3 is a similar view showing the device arranged for removing a comparatively long pad shaft.

Numeral 2 indicates the handle of the device which is formed on its end with furcations having cam portions 4. A member indicated generally by the numeral 5 and comprising a pair of spaced arms 6 is pivoted to the furcations at 8. The pairs of arms are joined together by a curved plate 12 which serves to position the arms about one of the members to be operated on. The lower ends of the arm 6 are enlarged at 10 to form a bearing, the purpose of which will be referred to, and the curved plate 12 is formed with stop shoulders 14 which co-operate with a comparatively long arm 17 when the latter is placed in operative position. The curved plate 12 and the enlarged portion 10 are cut away as shown at 16 to ensure that the force of the device will not be applied at any great distance from the longitudinal axis of the members which are to be separated. Likewise pivoted to the cam portions at 8 is a comparatively long member indicated generally by the numeral 17 and composed of a pair of arms 18 joined near their free ends by a curved plate 20. This plate is curved to enable the arms 18 to lie alongside of the handle when in inoperative position and to allow them also to straddle the members to be operated on, the plate 20 also serving to position them in their working position. A suitable cut-away portion 22 is provided on the curved

plate and on the ends of arms 18 for the same purpose as the cut-away portion 16 above referred to.

Referring to Fig. 2 I have shown the head of the machine in which 26 indicates the rotatable spindle or sleeve which is interiorly tapered to receive the pad shaft or spindle 28 which is exteriorly tapered to fit the sleeve. On the lower end of the pad shaft is carried the usual pad 30 of abrasive material held by a clamp plate 32 and clamp nut 34. In this view the pad shaft is comparatively short and the shorter pair of arms 6 is inserted between the clamp plate 32 and the clamp nut 24 on the head of the machine. When the device is placed in such position that the furcations on the handle embrace the sleeve 26, the arms 6 straddle the tapered members, the bearing portion 10 fitting against the clamp plate 32. The curved plate 12 serves to position the arms 6 on opposite sides of the longitudinal axis of the tapered members, the weight of the plate 12 throwing the arms 6 toward the axis, this movement being limited by engagement of the curved plate 12 with the clamp nut 34, and the cut-away portion at 16 prevents the force of the device from being applied at too great a distance from this axis. When the shorter pair of arms 6 is used, the longer arms 18 lie alongside the handle 2 where their downward movement is limited by the curved plate 20.

When the device is to be used to remove a pad having a long shaft it is inserted as shown in Fig. 3, the long pair of arms 18 being then swung around between the arms 6, whereupon the stop shoulders 14 are engaged to retain the shorter pair of arms and the curved plate 12 in an out-of-the-way position. In this figure, I have indicated the pad shaft by the numeral 128 and the pad, clamp plate and clamp nut by numerals 130, 132 and 134, respectively, these parts, except in dimensions, being similar to parts 28, 30, 32 and 34 above described. The separation of the tapered members is effected substantially the same as has been described with reference to Fig. 2.

Having described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. A device for separating axially alined members comprising a cam carrying handle, and a pair of members of unequal length pivoted to the cam and constructed and arranged to straddle the members to be separated.

2. A device for separating axially alined members comprising a cam carrying handle, pairs of spaced arms of unequal length pivoted to the cam, and a curved plate joining the arms of each pair, the arms constructed and arranged to straddle the members to be separated.

3. A device for separating axially alined members comprising a handle having a bifurcated cam portion, pairs of spaced arms of unequal length pivoted to the cam portion, the bifurcated cam portion and the pairs of arms straddling the members to be separated, the device thereby exerting its power near the longitudinal axis of the members to avoid bending them.

4. A device for separating axially alined members comprising a handle having furcations, cam portions formed on the furcations, a pair of arms pivoted to the furcations, a second pair of arms pivoted to the furcations, and a plate joining the arms of each pair and constructed to position the device near the longitudinal axis of the members.

5. A device for separating axially alined members comprising a handle having a cam, and a pair of members pivoted to the cam, one of the members arranged outside of the other to embrace said other member.

6. An article of manufacture comprising a handle having a cam portion, a longer arm and a shorter arm pivoted to the cam portion and co-operating with the latter in separating pairs of members which are differently spaced, one of the arms constructed and arranged to occupy an out-of-the-way inoperative position along said handle.

7. An article of manufacture comprising a handle having a cam portion, a member pivoted to the cam and when inoperative embracing the handle, and a shorter member pivoted to the cam and when inoperative embracing the longer member.

8. An article of manufacture comprising a handle having a bifurcated cam portion, a pair of arms pivoted to the cam portion, and a curved plate joining the arms to enable the latter to embrace a spindle in one position and to embrace the handle in another position.

9. An article of manufacture comprising a handle having a bifurcated cam portion, a pair of arms pivoted to the cam portion, a curved plate joining the arms to hold the latter out of the way and inoperative, a pair of shorter arms pivoted to the cam portion outside of the longer arm, and a curved plate joining the shorter arms to hold the latter out of the way of the longer arm.

10. An article of manufacture comprising a handle having a cam portion bifurcated to embrace a spindle, and a pair of pivoted arms embracing the furcations and movable from an operative position embracing a spindle to an out-of-the-way inoperative position alongside the handle.

11. An article of manufacture comprising a handle having a cam portion bifurcated to embrace a spindle, a pair of pivoted arms embracing the furcations and movable from an operative position embracing a spindle to

an out-of-the-way inoperative position alongside the handle, and a shorter pair of arms for pivotally embracing a spindle and retained automatically out of the way by the other pair of arms.

12. An article of manufacture comprising a cam carrying handle, a pair of arms pivoted to the cam, a curved plate connecting the arms to position the arms around a spindle, and a cut-away portion on the plate to ensure application of power near the longitudinal axis of the spindle.

13. A device for separating alined members comprising a cam carrying handle, and a member pivoted to the cam and constructed and arranged to straddle the members to be separated.

14. A device for separating alined members comprising a handle having a cam at one end to engage an abutment on one of the members, and an arm pivoted to the cam and arranged to engage an abutment on the other member.

In testimony whereof I have signed my name to this specification.

EDWARD F. HODGKINS.