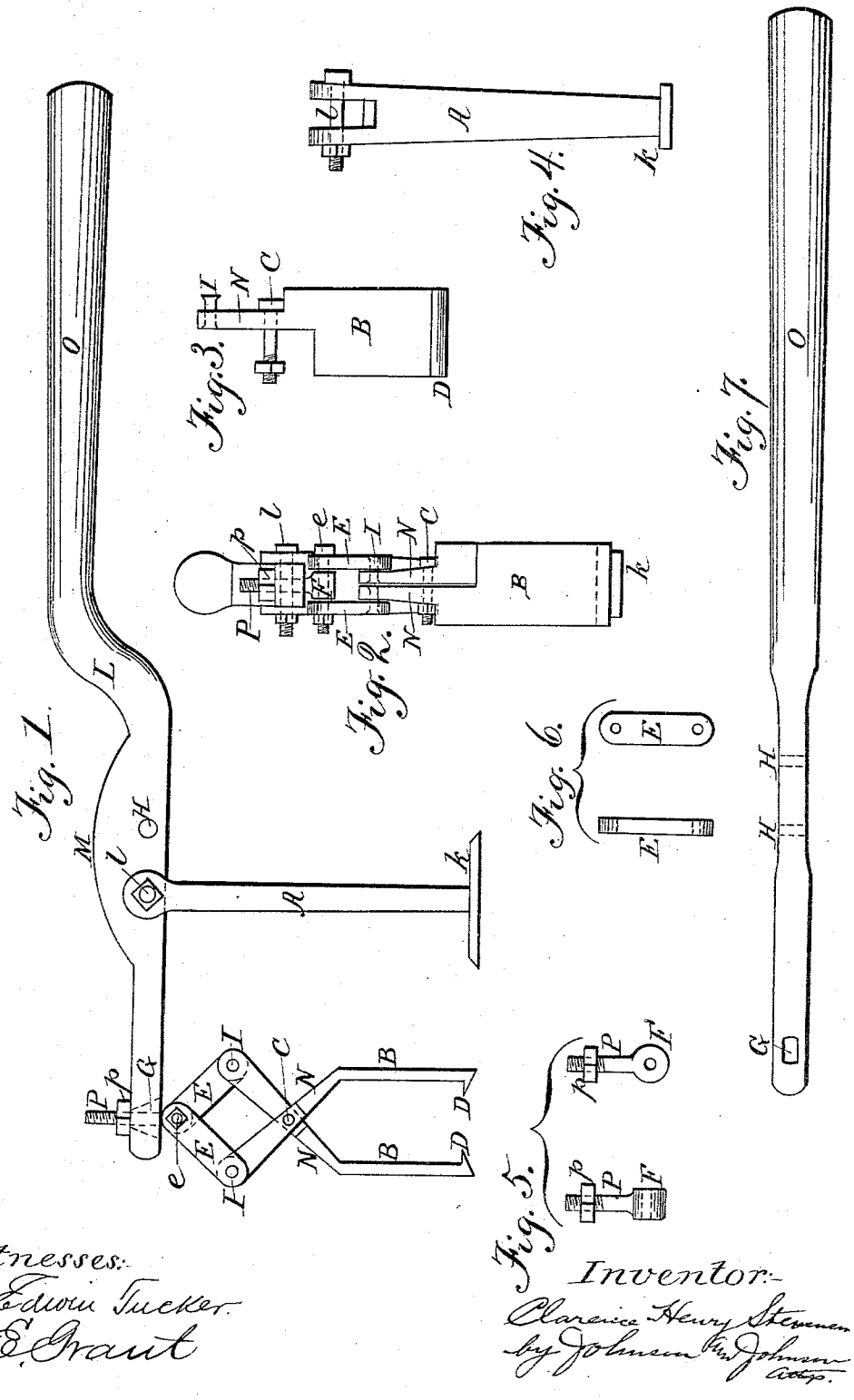
(No Model.)

C. H. STEVENSON.

FLIGHT EXTRACTOR FOR SCREW CONVEYERS FOR FLOUR MILLS.

No. 339,591. Patented Apr. 6, 1886.



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UNITED STATES PATENT OFFICE.

CLARENCE HENRY STEVENSON, OF HASTINGS, MINNESOTA.

FLIGHT-EXTRACTOR FOR SCREW-CONVEYERS FOR FLOUR-MILLS.

SPECIFICATION forming part of Letters Patent No. 339,591, dated April 6, 1886.

Application filed January 22, 1885. Serial No. 189,390. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE HENRY STEVENSON, a citizen of the United States, residing at Hastings, in the county of Dakota and State of Minnesota, have invented new and useful Improvements in Flight-Extractors for Screw-Conveyers of Flour-Mills, of which the following is a specification.

My invention relates to devices for removing flights from wooden conveyers or shafts in use in flouring-mills. The flights of a conveyer are generally made of solid pieces of wood, varying in size, but mostly two and one-fourth inches by two and one-half inches with a one-half-inch-shank one inch to one and one-half inch in length, which are driven into the body of the shaft or holes bored for their reception, as necessity may require, and great difficulty is experienced in removing and replacing such flights when they become broken or otherwise damaged, or when changes become necessary for the purpose of conveying material in a different direction, and the flights are in such close relationship to each other that there is not sufficient room between them to permit a free operation in prying out the damaged flights.

My invention is designed to overcome this difficulty, and to facilitate the extraction of the flights by a pulling device especially designed for this purpose, as fully hereinafter set forth and particularly claimed.

In the drawings, Figure 1 represents a side view of my improved flight-extractor. Fig. 2 is a front end view partly in section. Figs. 3, 4, 5, 6, and 7 are detailed views of the various parts separated.

The lever O has an offset, L, formed thereon midway its ends, which causes the portions on opposite sides thereof to lie in different planes. The forward end of the lever is provided with a vertical aperture, G, conical shaped, the contracted portion being uppermost.

Between the aperture G and offset L the lever is widened or raised, preferably on its upper edge, as at M. This expanded portion is provided with a series of apertures, H, any one of which may receive the fulcrum-pin for the lever. The two parts of the tongs or clamps are made to correspond, and are rights and lefts. Each consists of a vertical portion, B, having its lower end bent at right angles and beveled upward, terminating in a chisel-edge jaw, D, and an upwardly and inwardly inclined upper portion, N, which is cut away on each side to permit the lapping of the inclined portions and prevent a too great width of the device. The tongs are pivoted at a point, C, midway the ends of the inclined portions N, and their outer ends are pivotally connected by links E with a bolt, P, swivelly mounted in the opening G in the end of the lever. The swivel-bolt P has an enlarged transversely-apertured head, F, and the links E are lapped one on each side thereof and secured by a bolt, *e*. The swivel-bolt P is secured by a nut, *p*, secured on its upper end above the lever. It must be observed that the claw parts are so proportioned and disposed that normally the portions B of the tongs are parallel, and their pivotal connections I with the links E are directly above and in the plane of the portions B. By this construction and disposition of parts the tongs are best adapted to enter between the flights, and owing to the several connections between them and the lever they will readily adjust themselves to the inclination or deflection of the flights. By having the opening G, through which the bolt P passes downwardly and outwardly, flared, the strain on application of power is in a line parallel with the bolt P, which prevents any strain on the bolt or lever. To afford a purchase for the lever, a standard, A, is provided having a foot-piece, *k*, and a bifurcated upper end to receive the lever, said end being transversely apertured to correspond with the openings H in the lever, to which it is secured by a bolt, *l*, passing through the apertured end of the standard and one of the openings H.

From the foregoing the operation of the device is readily understood. When it is desired to extract a flight, the parts B of the tongs are passed one on each side of the flight and the standard adjusted to any suitable position, and application of force to the outer end of the lever will cause the jaws D to bite into the flight, and a continued application of the force will cause the removal of the flight. The swiveling capacity of the tongs allows

them to adjust themselves to the position of flight to bring the long edges of the biting claws straight with the sides of the flight.

I claim—

1. The combination, with the standard A and the lever O pivoted thereto and having the end opening, G, of the eyed screw-bolt P, the pivoted tongs B, the pivoted links E, and the bolt *e*, whereby the tongs have a swiveling connection with said lever, and the latter is fulcrumed upon a rigid support between the lever-handle and the tongs, as described, and for the purpose stated.

2. The combination of a pair of tongs, links pivotally connected to their upper ends, and a bolt pivotally connecting the links with a lever having a vertical aperture contracted at its highest point and expanded at its lowest point, and a stop, *p*, to secure said bolt in place, whereby the power is always transmitted from the lever to the tongs in a line parallel with the bolt, substantially as described.

3. The combination of the tongs composed of corresponding parts each consisting of a portion, B, terminating in a chisel-shaped jaw, D, bent at right angles thereto, and an upper inclined portion, N, cut away on each side, a pair of links connecting with the upper ends of the tongs, a bolt pivotally uniting the free ends of the links, and a lever apertured for the reception of the bolt, whereby the tongs are swivelly supported, for the purposes set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

CLARENCE HENRY STEVENSON.

Witnesses:

EDWARD VOSE,

M. V. SEYMOUR.