

CABLE CLAMP.

1,060,386.

FIG. 1.

FIG. 2.

FIG. 3.

FIG. 4.

FIG. 5.

FIG. 6.

WITNESSES

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CABLE-CLAMP.

1,060,386.

Specification of Letters Patent.

Patented Apr. 29, 1913.

Application filed July 22, 1912. Serial No. 710,824.

To all whom it may concern:

Be it known that I, MAX WACHTEL, a resident of Donora, in the county of Washington and State of Pennsylvania, have invented certain new and useful Improvements in Cable-Clamps, of which the following is a specification.

The object of this invention is to provide a simple and efficient cable pulling clamp which maintains a wedging hold on the cable, the cable clamping pressure increasing with the cable pulling force imparted thereto, making it quite impossible for the clamp to slip or lose its hold. The clamping force or pressure is derived from the cable drawing stress or pull, and a further purpose is to provide for transmitting the clamping pressure in a line at right angles to the cable axis.

In the accompanying drawings, Figure 1 is an elevation of the improved clamp positioned on a cable, and Fig. 2 is a longitudinal section of the same. Fig. 3 is an end view of the clamp, and Figs. 4 and 5 are views of the clamping faces of the movable and fixed jaws, respectively. Fig. 6 is a detail of the wedging cam.

Referring to the drawings, 2 designates what I term the fixed jaw from the opposite edges of which project the separated parallel arms 3, and lying between the latter is the movable jaw 4 having its gripping face 4' opposed to gripping face 2' of jaw 2. The outer face 5 of jaw 4 is inclined from end to end, and is serrated to provide the transverse teeth 6. At the narrower end of jaw 4 is the tongue-like extension 7 to which a cable pulling line or other draft means is connected.

The toothed face of jaw 4 is engaged by the toothed periphery 8' of head 8 rotatable between arms 3 on eccentric trunnions 9 entered in bearings 10 formed in arms 3, the bearings being open through the edges of arms 3 as indicated at 10' to permit the trunnions to enter, in the preferred adaptation the outer sides of arms 3 being formed with outwardly bulged ribs 3' where the bearings open through the arm edges. Head 8 may be provided with projection 11 for turning it as desired.

In operation, the clamp is applied to cable A as shown in Figs. 1 and 2, the cam head 8 being turned down as in dotted lines in Fig. 2 until the extremities of jaw 4 are substan-

tially in line with the extremities of jaw 2, whereupon head 8 is turned into the full line position, Figs. 1 and 2, with its teeth engaging teeth 6 of the jaw so that a positive connection is had between the faces of the head and jaw. The result is that any longitudinal movement of jaw 4 under the stress of the pulling force transmitted through extension 7 operates to increase the wedging hold of the clamp jaws. If desired, jaw 4 may not be fully in line with jaw 2 when head 8 is turned into wedging position, the purpose being to compensate for the slight longitudinal movement of jaw 4 under the pulling force so that when the clamp attains its maximum pressure the jaws are in alinement, or substantially so, as in Figs. 1 and 2.

An advantage of the construction above described is that the cable clamping force is imparted to the cable at right angles to the cable axis so that there is no tendency on the part of the clamp to bend or distort the cable, a serious objection to cable clamps now generally used. In this connection the particular arrangement of the engaging faces of jaw and cam are important. As will be seen the face 6 of the jaw 4 increases in distance from its gripping face away from the pulling means connection, while the surface 8' of the cam 8 increases in distance from the cam axis as the cam moves to provide the wedging action. As a result, the pulling force acts to quickly set the gripping face of the movable jaw and consequently the direction of clamping force is not materially disturbed by the movement of the jaw and cam, the comparatively small movement required in setting the jaw being insufficient to affect this action. This becomes of importance where sagging of the cable is had, since the close approach of the point of engagement to the line of clamping action acts to practically render the weight of the jaw ineffective to rotate the cam in the direction to release the wedge; this is also aided by the arm 11 which, if the device comes in contact with the ground, would act as a stop to limit the return movement of the cam. The gripping faces of the jaws are preferably formed with spurs 12 located in the center thereof, and with the relatively short gripping ribs 12' at either side of projections 12, see Figs. 4 and 5.

The improved clamp is of simple construction.

struction, being embodied in three pieces or castings so that danger of disorder is practically eliminated.

I claim:—

5 1. In a cable clamp, the combination of
opposed jaws adapted to grip a cable with
one jaw movable longitudinally of the other
jaw and adapted to connect with cable pull-
10 ing means, the face of the longitudinally
movable jaw opposite its gripping face be-
ing toothed, said toothed face increasing in
distance from the gripping face away from
the pulling means connection, and a rota-
15 table toothed cam engaging the toothed face
of the jaw and operating to wedge the same
toward the other jaw under the stress of the
cable pulling force imparted to said move-
able jaw, the engaging face of the cam in-
20 creasing in distance from the cam axis as
the cam is moved to provide the wedging
action, whereby the pulling force acts to
render the increases of cam and jaw effective
simultaneously.

25 2. In a cable clamp, the combination of
opposed jaws adapted to grip a cable with
one jaw movable longitudinally of the other
jaw and adapted to connect with cable pull-
ing means, arms projecting from the fixed
30 jaw with the movable jaw located between
the arms, the arms formed with bearings hav-
ing lateral trunnion admitting openings, and
a device located between the said arms for
wedging the movable jaw toward the fixed
35 jaw and with trunnions on said device en-
tered and rotatable in said bearings, said de-
vice and the movable jaw having engaging
faces, said faces increasing in distance from
the device axis and jaw gripping face re-
40 spectively as the device is moved to provide
the wedging action, whereby the pulling
force acts to render the increases of device
and jaw effective simultaneously.

3. In a cable clamp, the combination of
opposed jaws adapted to grip a cable with
45 one jaw movable longitudinally of the other
jaw and adapted to connect with cable
pulling means, arms projecting from the
fixed jaw with the movable jaw located be-
tween the arms, the arms formed with bear-
50 ings and with trunnion admitting slots ex-
tending from the bearings to the arm edges
and the arms formed with bulges which
bridge said slots, and a device located be-
tween the said arms for wedging the move-
55 able jaw toward the fixed jaw and with
trunnions on said device entered through
the arm slots and rotatable in said bearings,
said device and the movable jaw having en-
gaging faces, said faces increasing in dis-
60 tance from the device axis and jaw gripping
face respectively as the device is moved to
provide the wedging action, whereby the
pulling force acts to render the increases of
device and jaw effective simultaneously.

65 4. In a cable clamp, the combination of

opposed jaws adapted to grip a cable with
one jaw movable longitudinally of the other
jaw and with the movable jaw extended at
one end to connect with cable pulling means,
arms integral with and projecting from the
70 fixed jaw with the movable jaw located be-
tween the arms, the edges of the arms dis-
tant from the pulling extension of the mov-
able jaw slotted inwardly with the slots ter-
minating in bearings, and a cam adapted to
75 be entered between the arms and engage the
movable jaw, the cam formed with integral
trunnions adapted to enter the bearings in
the arm through the slots in the latter, said
cam and the movable jaw having engaging
80 faces, said faces increasing in distance from
the cam axis and jaw gripping face respec-
tively as the cam is moved to provide the
wedging action, whereby the pulling force
acts to render the increases of cam and jaw
85 effective simultaneously.

5. In a cable clamp, the combination of
opposed jaws adapted to grip a cable with
one jaw movable longitudinally of the other
90 jaw and with the movable jaw having a lon-
gitudinally tapered transversely toothed
outer surface and with the movable jaw ex-
tended at one end to connect with cable
pulling means, the taper providing an in-
crease in distance between the gripping face
95 and the outer surface away from the pulling
means connection, arms integral with and
projecting from the fixed jaw with the mov-
able jaw located between the arms, the edges
of the arms distant from the pulling exten-
100 sion of the movable jaw slotted inwardly
with the slots terminating in bearings, and
a toothed cam adapted to be entered between
the arms and engage the tapered toothed
face of the movable jaw, the cam formed
105 with integral trunnions adapted to enter the
bearings in the arm through the slots in the
latter, the engaging face of the cam increas-
ing in distance from the cam axis as the cam
is moved to provide the wedging action,
110 whereby the pulling force acts to render the
increases of cam and jaw effective simultane-
ously.

6. In a cable clamp, opposed gripping
jaws, a rotatable cam carried by one of said
115 jaws and adapted to engage a wedging face
of the other jaw, said jaws being clamped
in position by the movement of the wedging
jaw in a direction to wedge the cam and
jaw, the wedging faces of the jaw and cam
120 increasing in distance from the jaw grip-
ping face and cam axis respectively as the
cam is moved to provide the wedging action,
whereby the pulling force acts to render the
increases of jaw and cam effective simul-
125 taneously.

7. In a cable clamp, opposed gripping
jaws, a rotatable cam carried by one of said
jaws and adapted to engage a wedging face
of the other jaw, said jaws being clamped in
130

position by the movement of the wedging
jaw in a direction to wedge the cam and jaw,
the wedging faces of the jaw and cam in-
creasing in distance from the jaw gripping
5 face and cam axis respectively as the cam
is moved to provide the wedging action,
whereby the pulling force acts to render the
increases of jaw and cam effective simul-
taneously, said cam having a member

adapted to limit its return movement under 10
excessive sagging of the cable.

In testimony whereof I affix my signature
in presence of two witnesses.

MAX WACHTEL.

Witnesses:

J. M. NESBIT,

ALEX. S. MABON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."